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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,704	05/27/2005	Nobuyoshi Takeuchi	92478-3200	9263
52044 7590 02/26/2007 SNELL & WILMER L.L.P. (Matsushita) 600 ANTON BOULEVARD SUITE 1400 COSTA MESA, CA 92626			EXAMINER WALFORD, NATALIE K	
			ART UNIT	PAPER NUMBER
			2879	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/26/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/536,704

Applicant(s)

TAKEUCHI ET AL.

Examiner

Natalie K. Walford

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 May 2005 and 22 November 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

The Amendment, filed on November 22, 2006, has been entered and acknowledged by the Examiner. Cancellation of claim 4 has been entered. Newly added claims 6-9 has been entered. Claims 1-3 and 5-9 are pending in the instant application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 and 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keijser et al. (US 6,300,729) in view of Kurashina et al. (US PUB 2002/0155944) in further view of Watanabe et al. (US 6,482,761).

Regarding claim 1, Keijser discloses a metal halide lamp in figures 1 and 2 comprising an arc tube (item 1) that includes: a pair of electrode structures, each of which has an electrode (items 4 and 5) at a tip (items 4b and 5b); a main tube part (item 3) made of ceramic (column 3, lines 7-9), and containing a discharge space (item 11) in which the electrodes of the electrode structures are located to oppose each other; and a pair of thin tube parts (items 34 and 35) that connect from the main tube part and are sealed by respective sealing members (item 10) with the electrode structures inserted therein, wherein $20 \leq WL \leq 50$ and $EL/Di \geq 2.0$ are satisfied (column 4, lines 41-43), where tube wall loading of the arc tube is $WL(W/cm^2)$, a distance between the

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electrodes is EL(mm), an inner diameter of the main tube part is Di(mm), but does not expressly disclose that the ceramic is polycrystalline alumina having magnesium oxide of 200 ppm or below and that $0.5 \leq G \leq 5.0$ is satisfied, where a crystal grain diameter of the polycrystalline alumina ceramic is G(μm), as claimed by Applicant. Kurashina is cited to show polycrystalline alumina to be used in an arc tube of a metal halide lamp (paragraph 2). Kurashina also shows that the ceramic polycrystalline has an average grain size in the range of 5 to 50 μm (paragraph 12). Kurashina teaches that by using this type of ceramic polycrystalline structure, there is no fear to occur any cracks under temperature variations (paragraph 13). Kurashina also discloses that the MgO may be contained at 250 ppm (paragraph 28), which is higher than Applicant's claimed range. However, Watanabe is cited to show a polycrystalline alumina that may be used in a metal halide lamp (column 6, lines 41-46). Watanabe discloses that the alumina has an average grain size of 5 to 50 μm (column 2, lines 58-59) and MgO is contained between 10 and 100 ppm (column 4, lines 45-48). Watanabe teaches that having MgO present in a small amount can help enhance the durability of the alumina (column 1, lines 46-49).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Keijser's invention to include the ceramic is polycrystalline alumina having magnesium oxide of 200 ppm or below and that $0.5 \leq G \leq 5.0$ is satisfied, where a crystal grain diameter of the polycrystalline alumina ceramic is G(μm) as suggested by Kurashina and Watanabe for preventing cracks under temperature variations and enhance the durability in the alumina.

Regarding claim 2, the combined reference of Keijser, Kurashina, and Watanabe disclose the metal halide lamp of Claim 1, wherein the crystal grain diameter $G(\mu\text{m})$ of the polycrystalline alumina ceramic satisfies $0.5 \leq G \leq 1.5$ (Kurashina; paragraph 28).

Regarding claim 3, the combined reference of Keijser, Kurashina, and Watanabe disclose the metal halide lamp of Claim 1, wherein the inner diameter $D_i(\text{mm})$ of the main tube part satisfies $2.0 \leq D_i \leq 10.0$ (Keijser; column 4, lines 41-42).

Regarding claim 5, the combined reference of Keijser, Kurashina, and Watanabe disclose the metal halide lamp of Claim 1, wherein the polycrystalline alumina ceramic has transmittance of 94% or more (Kurashina; paragraph 32).

Regarding claim 6, Keijser discloses a metal halide lamp in figures 1 and 2 comprising an arc tube (item 1) that includes: a pair of electrode structures, each of which has an electrode (items 4 and 5) at a tip (items 4b and 5b); a main tube part (item 3) made ceramic (column 3, lines 7-9), and containing a discharge space (item 11) in which the electrodes of the electrode structures are located to oppose each other; and a pair of thin tube parts (items 34 and 35) that connect from the main tube part and are sealed by respective sealing members (item 10) with the electrode structures inserted therein, wherein $20 \leq WL \leq 50$ and $EL/D_i \geq 2.0$ are satisfied (column 4, lines 41-43), where tube wall loading of the arc tube is $WL(\text{W/cm}^2)$, a distance between the electrodes is $EL(\text{mm})$, an inner diameter of the main tube part is $D_i(\text{mm})$, but does not expressly disclose that the ceramic is polycrystalline alumina having magnesium oxide in a range of 1 ppm to 200 ppm and $0.5 \leq G \leq 5.0$ is satisfied, where a crystal grain diameter of the polycrystalline alumina ceramic is $G(\mu\text{m})$, as claimed by Applicant. Kurashina is cited to show polycrystalline alumina to be used in an arc tube of a metal halide lamp (paragraph 2). Kurashina also shows

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that the ceramic polycrystalline has an average grain size in the range of 5 to 50 μm (paragraph 12). Kurashina teaches that by using this type of ceramic polycrystalline structure, there is no fear to occur any cracks under temperature variations (paragraph 13). Kurashina also discloses that the MgO may be contained at 250 ppm (paragraph 28), which is higher than Applicant's claimed range. However, Watanabe is cited to show a polycrystalline alumina that may be used in a metal halide lamp (column 6, lines 41-46). Watanabe discloses that the alumina has an average grain size of 5 to 50 μm (column 2, lines 58-59) and MgO is contained between 10 and 100 ppm (column 4, lines 45-48). Watanabe teaches that having MgO present in a small amount can help enhance the durability of the alumina (column 1, lines 46-49).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Keijser's invention to include the ceramic is polycrystalline alumina having magnesium oxide in a range of 1 ppm to 200 ppm and $0.5 \leq G \leq 5.0$ is satisfied, where a crystal grain diameter of the polycrystalline alumina ceramic is $G(\mu\text{m})$ as suggested by Kurashina and Watanabe for preventing cracks under temperature variations and enhance the durability in the alumina.

Regarding claim 7, the combined reference of Keijser, Kurashina, and Watanabe disclose the metal halide lamp of Claim 6, wherein the crystal grain diameter $G(\mu\text{m})$ of the polycrystalline alumina ceramic satisfies $0.5 \leq G \leq 1.5$ (Kurashina; paragraph 28).

Regarding claim 8, the combined reference of Keijser, Kurashina, and Watanabe disclose the metal halide lamp of Claim 6, wherein the inner diameter $D_i(\text{mm})$ of the main tube part satisfies $2.0 \leq D_i \leq 10.0$ (Keijser; column 4, lines 41-42).

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Regarding claim 9, the combined reference of Keijser, Kurashina, and Watanabe disclose the metal halide lamp of Claim 1, wherein the polycrystalline alumina ceramic has transmittance of 94% or more (Kurashina; paragraph 32).

Response to Arguments

Applicant's arguments with respect to claims 1-5 have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natalie K. Walford whose telephone number is (571)-272-6012. The examiner can normally be reached on Monday-Friday, 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

nkW

[Handwritten signature]
2/17/07

Sikha Roy
2/19/07
AU 2879